

CONSTRUCTION SUMMARY REPORT SOIL REMOVAL FROM BUILDING 123

HUNTERS POINT SHIPYARD SAN FRANCISCO, CALIFORNIA

1.0 General

1.1 Background

Building 123 is located on Lockwood Street, at the northern end of Hunters Point Shipyard (HPS) in San Francisco, California. The building covers an area of approximately 500 feet by 150 feet, and is situated on Installation Restoration (IR) Site 10, within Parcel B. The soil stockpiled within Building 123 was initially excavated from the Tank Farm (IR Site 6) at HPS, and includes the remains of a bioremediation pilot study conducted by the Navy Public Works Center - San Francisco Bay Area (PWC-SFBA) and CH2M Hill. The study was discontinued in early 1997.

1.2 Delivery Order Overview

Delivery Order (D.O.) 132 continued the work begun under D.O. 006, Modification 11, involving the sampling, removal, and off-site disposal of approximately 3,200 cubic yards of contaminated soil and three activated carbon drums from Building 123 at HPS. Field activities (including sampling) were conducted between October 12, 1998 and November 13, 1998. A final building "walkthrough" inspection (attended by Navy and IT representatives) was held on November 20, 1998. The building floor was considered to be sufficiently cleaned and free of soil, in anticipation of subsequent soil stockpiling for a different delivery order.

2.0 Field Activities

2.1 Analytical Sampling and Testing

Soil pile and activated carbon drum sampling was performed on October 12, 1998, in accordance with the Navy-approved Sampling and Analysis Plan, to profile the wastes for subsequent landfill disposal. Four-point composite samples were taken from each of the four soil stockpiles and one sample was taken from each of the activated carbon drums (to be composited). The stockpiles and carbon drums were numbered consecutively from north to south, as shown on the sample collection log diagrams in Appendix A. Based on initial metals analyses, each of the four stockpile composites underwent Toxic Characteristic Leaching Procedure (TCLP) testing and

Soluble Threshold Limit Concentration (STLC) - chromium and STLC - nickel testing. The composite from Stockpile Number 2 was also tested for STLC - lead.

Analytical testing was performed by Applied Physics and Chemistry Laboratory (APCL) of Chino, California, in accordance with the approved Sampling and Analysis Plan. Analytical test results, as well as associated sample collection logs (with accompanying sample location diagrams) and chains of custody are provided in Appendix A.

2.2 Site Preparation

Construction activities began on October 30, 1998 with power shut-off and site preparation activities at Building 123. The bioremediation aeration equipment was dismantled, inventoried, and transferred to Building 130, per the Navy's direction. The inventory lists, summarized by soil pile number, are provided in Appendix B. The building was secured between November 2, 1998 and November 4, 1998 in preparation for soil loading activities. This included: placing warning signs and traffic control devices, and "boarding up" building perimeter openings. Large fans were set up within Building 123 to enhance air flow during soil loading operations.

2.3 Soil Removal and Disposal

Soil loading, transport, and disposal activities took place between November 6 and November 13, 1998 (upon completion of analytical testing and waste profiling), in accordance with the Navy-approved Work Plan, CQC Plan, and Site Health and Safety Plan. The soil was transported to Forward Landfill in Manteca, California as Class II cover.

The soil stockpiles were loaded consecutively from the south to the north of Building 123, through the large opening near the south end of the east side of the building, using a front-end loader. The stockpiles were sprayed with water during loading operations to minimize the generation of dust. Trucks were staged and loaded just to the east of Building 123. The majority of the soil stockpiles consisted of moist clayey sand.

Soil quantities, summarized daily and based on an average load weight of 23.46 tons (based on the total number of loads and the weight ticket sums), are as follows:

Date	No. Loads	Weight (tons)
11-06-98	34	798
11-09-98	56	1,314
11-10-98	57	1,337
11-13-98	1	23
Totals	148	3,472

The soil was transported by DenBeste Transportation of Windsor, California primarily using semi-end dump trucks, with some transfer trucks. Outside of Building 123, soil was incrementally added to the trucks with a smaller backhoe-loader, as necessary, to reach a total gross weight of approximately 80,000 pounds per load (resulting in an approximate net weight of 23.5 tons per load). The trucks were weighed on site (using a portable scale), "dry" decontaminated (using brooms), then covered with tarps prior to departing Hunters Point Shipyard. Each truck was labeled with a bumper sticker stating the following message:

"IF YOU HAVE ANY QUESTIONS CALL (650) 244-3109".

The concrete floor and east entryway of Building 123 were cleaned between November 11, 1998 and November 13, 1998, using a front-end loader, backhoe, and power sweeper. Residual soils were collected and transported to Forward Landfill on November 13, 1998 in a single load.

On January 11, 1999, IT personnel transported the three activated carbon drums associated with the bioremediation equipment to Altamont Landfill in Altamont, California as a non-hazardous waste.

All waste profiles and manifests were approved by and provided to the Navy.

APPENDIX A

ANALYTICAL TEST RESULTS

Applied P & Ch Laboratory

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Tel: (909) 590-1828 Fax: (909) 590-1498

Submitted to:

International Technology (Martinez)

Attention: Jeff Sherwin

4585 Pacheco Blvd.

Martinez CA 94553

Tel: (510)372-9100 Fax: (510)372-5220

APCL Analytical Report

Service ID #: 801-985559

Received: 10/13/98

Collected by: A.Pascall

Extracted: 10/13-14/98

Collected on: 10/12/98

Tested: 10/14-20/98

Reported: 10/22/98

Sample Description: Soil and carbon from DO 132

Project Description: 775745 Hunter's Point

Analysis of Soil Samples

Component Analyzed	Method	Unit	PQL	Analysis Result	
				132-DS-00(1 to 3) 98-05559-(1 to 3)	132-SP1-00(1 to 4) 98-05559-(4 to 7)
PERCENT MOISTURE	ASTM-D2216	W%	0.5	-	4.4
PH	9040	pH unit	0.01	-	7.9
Dilution Factor				1	1
ARSENIC, AS	6010	mg/kg	0.3	-	2.7
BERYLLIUM, BE	6010	mg/kg	0.2	-	<0.21
CADMIUM, CD	6010	mg/kg	0.2	-	0.053J
CHROMIUM, CR	6010	mg/kg	0.5	-	220
TCLP CHROMIUM, CR	6010	µg/L	5	-	8.6
STLC CHROMIUM, CR	7190	µg/L	500	-	1,200
LEAD, PB	6010	mg/kg	0.3	-	29
MANGANESE, MN	6010	mg/kg	0.5	-	750
NICKEL, NI	6010	mg/kg	0.3	-	430
Dilution Factor				1	10
STLC NICKEL, NI	7520	µg/L	100	-	7,200
Dilution Factor				1	1
ZINC, ZN	6010	mg/kg	0.5	-	65
TRPH	418.1	mg/kg	100	-	3,000
Dilution Factor				1	1
GASOLINE RANGE ORGANICS	M8015V	mg/kg	0.5	-	<0.52
Dilution Factor				1	10
DIESEL RANGE ORGANICS	M8015E	mg/kg	10	-	2,200
Dilution Factor				1	10
MOTOR OIL RANGE ORGANICS	M8015E	mg/kg	10	-	270

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Component Analyzed	Method	Unit	PQL	Analysis Result	
				132-DS-00(1 to 3) 98-05559-(1 to 3)	132-SP1-00(1 to 4) 98-05559-(4 to 7)
VOLATILE ORGANICS					
Dilution Factor				1	1
ACETONE	8260	µg/kg	100	-	< 100
BENZENE	8260	µg/kg	5	-	< 5.2
BROMOBENZENE	8260	µg/kg	5	-	< 5.2
BROMOCHLOROMETHANE	8260	µg/kg	5	-	< 5.2
BROMODICHLOROMETHANE	8260	µg/kg	5	-	< 5.2
BROMOFORM	8260	µg/kg	5	-	< 5.2
BROMOMETHANE	8260	µg/kg	5	-	< 5.2
2-BUTANONE (MEK)	8260	µg/kg	100	-	< 100
N-BUTYLBENZENE	8260	µg/kg	5	-	< 5.2
SEC-BUTYLBENZENE	8260	µg/kg	5	-	< 5.2
TERT-BUTYLBENZENE	8260	µg/kg	5	-	< 5.2
CARBON DISULFIDE	8260	µg/kg	5	-	< 5.2
CARBON TETRACHLORIDE	8260	µg/kg	5	-	< 5.2
CHLOROBENZENE	8260	µg/kg	5	-	< 5.2
DIBROMOCHLOROMETHANE	8260	µg/kg	5	-	< 5.2
CHLOROETHANE	8260	µg/kg	5	-	< 5.2
CHLOROFORM	8260	µg/kg	5	-	< 5.2
CHLOROMETHANE	8260	µg/kg	5	-	< 5.2
2-CHLOROTOLUENE	8260	µg/kg	5	-	< 5.2
4-CHLOROTOLUENE	8260	µg/kg	5	-	< 5.2
1,2-DIBROMO-3-CHLOROPROPANE (DB)	8260	µg/kg	5	-	< 5.2
1,2-DIBROMOETHANE (EDB)	8260	µg/kg	5	-	< 5.2
DIBROMOMETHANE	8260	µg/kg	5	-	< 5.2
1,2-DICHLOROBENZENE	8260	µg/kg	5	-	< 5.2
1,3-DICHLOROBENZENE	8260	µg/kg	5	-	< 5.2
1,4-DICHLOROBENZENE	8260	µg/kg	5	-	< 5.2
DICHLORODIFLUOROMETHANE	8260	µg/kg	5	-	< 5.2
1,1-DICHLOROETHANE	8260	µg/kg	5	-	< 5.2
1,2-DICHLOROETHANE	8260	µg/kg	5	-	< 5.2
1,1-DICHLOROETHENE	8260	µg/kg	5	-	< 5.2
CIS-1,2-DICHLOROETHENE	8260	µg/kg	5	-	< 5.2
TRANS-1,2-DICHLOROETHENE	8260	µg/kg	5	-	< 5.2
1,2-DICHLOROPROPANE	8260	µg/kg	5	-	< 5.2
1,3-DICHLOROPROPANE	8260	µg/kg	5	-	< 5.2
2,2-DICHLOROPROPANE	8260	µg/kg	5	-	< 5.2
1,1-DICHLOROPROPENE	8260	µg/kg	5	-	< 5.2
CIS-1,3-DICHLOROPROPENE	8260	µg/kg	5	-	< 5.2
TRANS-1,3-DICHLOROPROPENE	8260	µg/kg	5	-	< 5.2
ETHYLBENZENE	8260	µg/kg	5	-	< 5.2
HEXACHLOROBUTADIENE	8260	µg/kg	5	-	< 5.2

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Component Analyzed	Method	Unit	PQL	Analysis Result	
				132-DS-00(1 to 3) 98-05559-(1 to 3)	132-SP1-00(1 to 4) 98-05559-(4 to 7)
ISOPROPYLBENZENE (CUMENE)	8260	µg/kg	5	-	< 5.2
P-ISOPROPYLtolUENE	8260	µg/kg	5	-	< 5.2
METHYLENE CHLORIDE	8260	µg/kg	5	-	< 5.2
4-METHYL-2-PENTANONE (MIBK)	8260	µg/kg	50	-	< 52
METHYL-T-BUTYL ETHER (MTBE)	8260	µg/kg	10	-	< 10
NAPHTHALENE	8260	µg/kg	5	-	< 5.2
N-PROPYLBENZENE	8260	µg/kg	5	-	< 5.2
STYRENE	8260	µg/kg	5	-	< 5.2
1,1,1,2-TETRACHLOROETHANE	8260	µg/kg	5	-	< 5.2
1,1,2,2-TETRACHLOROETHANE	8260	µg/kg	5	-	< 5.2
TETRACHLOROETHENE	8260	µg/kg	5	-	< 5.2
TOLUENE	8260	µg/kg	5	-	< 5.2
1,2,3-TRICHLOROBENZENE	8260	µg/kg	5	-	< 5.2
1,2,4-TRICHLOROBENZENE	8260	µg/kg	5	-	< 5.2
1,1,1-TRICHLOROETHANE	8260	µg/kg	5	-	< 5.2
1,1,2-TRICHLOROETHANE	8260	µg/kg	5	-	< 5.2
TRICHLOROETHENE	8260	µg/kg	5	-	< 5.2
TRICHLOROFLUOROMETHANE	8260	µg/kg	5	-	< 5.2
1,2,3-TRICHLOROPROPANE	8260	µg/kg	5	-	< 5.2
1,2,4-TRIMETHYLBENZENE	8260	µg/kg	5	-	< 5.2
1,3,5-TRIMETHYLBENZENE	8260	µg/kg	5	-	< 5.2
VINYL CHLORIDE	8260	µg/kg	5	-	< 5.2
XYLENE (TOTAL)	8260	µg/kg	5	-	< 5.2
SEMI-VOLATILE, PAH					
Dilution Factor				1	1
ACENAPHTHENE	8270	µg/kg	500	-	< 520
ACENAPHTHYLENE	8270	µg/kg	500	-	< 520
ANTHRACENE	8270	µg/kg	500	-	< 520
BENZ(A)ANTHRACENE	8270	µg/kg	500	-	91J
BENZO(A)PYRENE	8270	µg/kg	500	-	< 520
BENZO(B)FLUORANTHENE	8270	µg/kg	500	-	110J
BENZO(G,H,I)PERYLENE	8270	µg/kg	500	-	< 520
BENZO(K)FLUORANTHENE	8270	µg/kg	500	-	< 520
CHRYSENE	8270	µg/kg	500	-	97J
DIBENZ(A,H)ANTHRACENE	8270	µg/kg	500	-	< 520
FLUORANTHENE	8270	µg/kg	500	-	160J
FLUORENE	8270	µg/kg	500	-	< 520
INDENO(1,2,3-CD)PYRENE	8270	µg/kg	500	-	< 520
2-METHYLNAPHTHALENE	8270	µg/kg	500	-	52J
NAPHTHALENE	8270	µg/kg	500	-	< 520
PHENACETIN	8270	µg/kg	500	-	< 520
PHENANTHRENE	8270	µg/kg	500	-	< 520
PYRENE	8270	µg/kg	500	-	290J

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Component Analyzed	Method	Unit	PQL	Analysis Result	
				132-DS-00(1 to 3)	132-SP1-00(1 to 4)
				98-05559-(1 to 3)	98-05559-(4 to 7)
ORGANOCHLORINE PESTICIDES					
Dilution Factor				1	1
ALDRIN	8081	µg/kg	1	-	<1.0
BETA-BHC	8081	µg/kg	1	-	<1.0
ALPHA-BHC	8081	µg/kg	1	-	<1.0
DELTA-BHC	8081	µg/kg	1	-	<1.0
GAMMA-BHC (LINDANE)	8081	µg/kg	1	-	<1.0
ALPHA-CHLORDANE	8081	µg/kg	1	-	<1.0
GAMMA-CHLORDANE	8081	µg/kg	1	-	<1.0
4,4'-DDD	8081	µg/kg	2	-	<2.1
4,4'-DDE	8081	µg/kg	2	-	<2.1
4,4'-DDT	8081	µg/kg	2	-	<2.1
DIELDRIN	8081	µg/kg	2	-	<2.1
ENDOSULFAN I	8081	µg/kg	1	-	<1.0
ENDOSULFAN II	8081	µg/kg	2	-	<2.1
ENDOSULFAN SULFATE	8081	µg/kg	5	-	<5.2
ENDRIN	8081	µg/kg	2	-	<2.1
ENDRIN ALDEHYDE	8081	µg/kg	2	-	<2.1
ENDRIN KETONE	8081	µg/kg	2	-	<2.1
HEPTACHLOR	8081	µg/kg	1	-	<1.0
HEPTACHLOR EPOXIDE	8081	µg/kg	1	-	<1.0
METHOXYCHLOR	8081	µg/kg	10	-	<10
TOXAPHENE	8081	µg/kg	100	-	<100
PCBS					
Dilution Factor				1	1
AROCLOL-1016 (PCB-1016)	8082	µg/kg	50	-	<52
AROCLOL-1221 (PCB-1221)	8082	µg/kg	100	-	<100
AROCLOL-1232 (PCB-1232)	8082	µg/kg	50	-	<52
AROCLOL-1242 (PCB-1242)	8082	µg/kg	50	-	<52
AROCLOL-1248 (PCB-1248)	8082	µg/kg	50	-	<52
AROCLOL-1254 (PCB-1254)	8082	µg/kg	25	-	<26
AROCLOL-1260 (PCB-1260)	8082	µg/kg	25	-	35

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				132-SP2-00(1 to 4) 98-05559-(08 to 11)	132-SP3-00(1 to 4) 98-05559-(12 to 15)	132-SP4-00(1 to 4) 98-05559-(16 to 19)
PERCENT MOISTURE	ASTM-D2216	W%	0.5	4.8	2.3	3.5
PH	9040	pH unit	0.01	7.6	7.5	7.6
Dilution Factor				1	1	1
ARSENIC, AS	6010	mg/kg	0.3	2.9	3.1	4.0
BERYLLIUM, BE	6010	mg/kg	0.2	<0.21	<0.20	<0.21
CADMIUM, CD	6010	mg/kg	0.2	0.040J	0.016J	0.031J
CHROMIUM, CR	6010	mg/kg	0.5	320	280	270
TCLP CHROMIUM, CR	6010	µg/L	5	5.9	5.9	14
STLC CHROMIUM, CR	7190	µg/L	500	1,000	1,800	1,300
LEAD, PB	6010	mg/kg	0.3	69	29	32
STLC LEAD, PB	7420	µg/L	100	1,200	-	-
MANGANESE, MN	6010	mg/kg	0.5	710	650	690
NICKEL, NI	6010	mg/kg	0.3	560	570	500
Dilution Factor				10	10	10
STLC NICKEL, NI	7520	µg/L	100	6,300	8,600	8,100
Dilution Factor				1	1	1
ZINC, ZN	6010	mg/kg	0.5	60	61	71
TRPH	418.1	mg/kg	100	1,900	1,500	1,800
Dilution Factor				1	1	1
GASOLINE RANGE ORGANICS	M8015V	mg/kg	0.5	<0.53	<0.51	<0.52
Dilution Factor				10	10	10
DIESEL RANGE ORGANICS	M8015E	mg/kg	10	1,700	1,100	1,400
Dilution Factor				10	10	10
MOTOR OIL RANGE ORGANICS	M8015E	mg/kg	10	280	280	300
VOLATILE ORGANICS						
Dilution Factor				1	1	1
ACETONE	8260	µg/kg	100	<110	<100	<100
BENZENE	8260	µg/kg	5	<5.3	<5.1	<5.2
BROMOBENZENE	8260	µg/kg	5	<5.3	<5.1	<5.2
BROMOCHLOROMETHANE	8260	µg/kg	5	<5.3	<5.1	<5.2
BROMODICHLOROMETHANE	8260	µg/kg	5	<5.3	<5.1	<5.2
BROMOFORM	8260	µg/kg	5	<5.3	<5.1	<5.2
BROMOMETHANE	8260	µg/kg	5	<5.3	<5.1	<5.2
2-BUTANONE (MEK)	8260	µg/kg	100	<110	<100	<100
N-BUTYLBENZENE	8260	µg/kg	5	<5.3	<5.1	<5.2
SEC-BUTYLBENZENE	8260	µg/kg	5	<5.3	<5.1	<5.2
TERT-BUTYLBENZENE	8260	µg/kg	5	<5.3	<5.1	<5.2
CARBON DISULFIDE	8260	µg/kg	5	<5.3	<5.1	<5.2
CARBON TETRACHLORIDE	8260	µg/kg	5	<5.3	<5.1	<5.2
CHLOROBENZENE	8260	µg/kg	5	<5.3	<5.1	<5.2
DIBROMOCHLOROMETHANE	8260	µg/kg	5	<5.3	<5.1	<5.2
CHLOROETHANE	8260	µg/kg	5	<5.3	<5.1	<5.2
CHLOROFORM	8260	µg/kg	5	<5.3	<5.1	<5.2
CHLOROMETHANE	8260	µg/kg	5	<5.3	<5.1	<5.2

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				132-SP2-00(1 to 4) 98-05559-(08 to 11)	132-SP3-00(1 to 4) 98-05559-(12 to 15)	132-SP4-00(1 to 4) 98-05559-(16 to 19)
2-CHLOROTOLUENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
4-CHLOROTOLUENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,2-DIBROMO-3-CHLOROPROPANE (DB)	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,2-DIBROMOETHANE (EDB)	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
DIBROMOMETHANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,2-DICHLOROBENZENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,3-DICHLOROBENZENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,4-DICHLOROBENZENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
DICHLORODIFLUOROMETHANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,1-DICHLOROETHANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,2-DICHLOROETHANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,1-DICHLOROETHENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
CIS-1,2-DICHLOROETHENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
TRANS-1,2-DICHLOROETHENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,2-DICHLOROPROPANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,3-DICHLOROPROPANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
2,2-DICHLOROPROPANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,1-DICHLOROPROPENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
CIS-1,3-DICHLOROPROPENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
TRANS-1,3-DICHLOROPROPENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
ETHYLBENZENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
HEXACHLOROBUTADIENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
ISOPROPYLBENZENE (CUMENE)	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
P-ISOPROPYLtolUENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
METHYLENE CHLORIDE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
4-METHYL-2-PENTANONE (MIBK)	8260	µg/kg	50	< 53	< 51	< 52
METHYL-T-BUTYL ETHER (MTBE)	8260	µg/kg	10	< 11	< 10	< 10
NAPHTHALENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
N-PROPYLBENZENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
STYRENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,1,1,2-TETRACHLOROETHANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,1,2,2-TETRACHLOROETHANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
TETRACHLOROETHENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
TOLUENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,2,3-TRICHLOROBENZENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,2,4-TRICHLOROBENZENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,1,1-TRICHLOROETHANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,1,2-TRICHLOROETHANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
TRICHLOROETHENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
TRICHLOROFLUOROMETHANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,2,3-TRICHLOROPROPANE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,2,4-TRIMETHYLBENZENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
1,3,5-TRIMETHYLBENZENE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
VINYL CHLORIDE	8260	µg/kg	5	< 5.3	< 5.1	< 5.2
XYLENE (TOTAL)	8260	µg/kg	5	< 5.3	< 5.1	< 5.2

APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result		
				132-SP2-00(1 to 4) 98-05559-(08 to 11)	132-SP3-00(1 to 4) 98-05559-(12 to 15)	132-SP4-00(1 to 4) 98-05559-(16 to 19)
SEMI-VOLATILE, PAH						
Dilution Factor				1	1	1
ACENAPHTHENE	8270	µg/kg	500	< 530	< 510	< 520
ACENAPHTHYLENE	8270	µg/kg	500	< 530	< 510	90J
ANTHRACENE	8270	µg/kg	500	< 530	< 510	< 520
BENZ(A)ANTHRACENE	8270	µg/kg	500	< 530	< 510	230J
BENZO(A)PYRENE	8270	µg/kg	500	< 530	< 510	160J
BENZO(B)FLUORANTHENE	8270	µg/kg	500	< 530	81J	330J
BENZO(G,H,I)PERYLENE	8270	µg/kg	500	< 530	< 510	< 520
BENZO(K)FLUORANTHENE	8270	µg/kg	500	< 530	< 510	< 520
CHRYSENE	8270	µg/kg	500	< 530	< 510	290J
DIBENZ(A,H)ANTHRACENE	8270	µg/kg	500	< 530	< 510	< 520
FLUORANTHENE	8270	µg/kg	500	< 530	83J	220J
FLUORENE	8270	µg/kg	500	< 530	< 510	< 520
INDENO(1,2,3-CD)PYRENE	8270	µg/kg	500	< 530	< 510	< 520
2-METHYLNAPHTHALENE	8270	µg/kg	500	< 530	41J	59J
NAPHTHALENE	8270	µg/kg	500	< 530	< 510	< 520
PHENACETIN	8270	µg/kg	500	< 530	< 510	< 520
PHENANTHRENE	8270	µg/kg	500	< 530	< 510	240J
PYRENE	8270	µg/kg	500	120J	170J	370J
ORGANOCHLORINE PESTICIDES						
Dilution Factor				1	1	1
ALDRIN	8081	µg/kg	1	< 1.1	< 1.0	< 1.0
BETA-BHC	8081	µg/kg	1	< 1.1	< 1.0	< 1.0
ALPHA-BHC	8081	µg/kg	1	< 1.1	< 1.0	< 1.0
DELTA-BHC	8081	µg/kg	1	< 1.1	< 1.0	< 1.0
GAMMA-BHC (LINDANE)	8081	µg/kg	1	< 1.1	< 1.0	< 1.0
ALPHA-CHLORDANE	8081	µg/kg	1	< 1.1	< 1.0	< 1.0
GAMMA-CHLORDANE	8081	µg/kg	1	< 1.1	< 1.0	< 1.0
4,4'-DDD	8081	µg/kg	2	< 2.1	< 2.0	< 2.1
4,4'-DDE	8081	µg/kg	2	< 2.1	0.96J	< 2.1
4,4'-DDT	8081	µg/kg	2	< 2.1	< 2.0	< 2.1
DIELDRIN	8081	µg/kg	2	< 2.1	< 2.0	< 2.1
ENDOSULFAN I	8081	µg/kg	1	< 1.1	< 1.0	< 1.0
ENDOSULFAN II	8081	µg/kg	2	< 2.1	< 2.0	< 2.1
ENDOSULFAN SULFATE	8081	µg/kg	5	< 5.3	< 5.1	< 5.2
ENDRIN	8081	µg/kg	2	< 2.1	< 2.0	< 2.1
ENDRIN ALDEHYDE	8081	µg/kg	2	< 2.1	< 2.0	< 2.1
ENDRIN KETONE	8081	µg/kg	2	< 2.1	< 2.0	< 2.1
HEPTACHLOR	8081	µg/kg	1	< 1.1	< 1.0	< 1.0
HEPTACHLOR EPOXIDE	8081	µg/kg	1	< 1.1	< 1.0	< 1.0
METHOXYCHLOR	8081	µg/kg	10	1.2J	7.2J	< 10
TOXAPHENE	8081	µg/kg	100	< 110	< 100	< 100

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result		
				132-SP2-00(1 to 4) 98-05559-(08 to 11)	132-SP3-00(1 to 4) 98-05559-(12 to 15)	132-SP4-00(1 to 4) 98-05559-(16 to 19)

PCBS

Dilution Factor				1	1	1
AROCLOR-1016 (PCB-1016)	8082	µg/kg	50	< 53	< 51	< 52
AROCLOR-1221 (PCB-1221)	8082	µg/kg	100	< 110	< 100	< 100
AROCLOR-1232 (PCB-1232)	8082	µg/kg	50	< 53	< 51	< 52
AROCLOR-1242 (PCB-1242)	8082	µg/kg	50	< 53	< 51	< 52
AROCLOR-1248 (PCB-1248)	8082	µg/kg	50	< 53	< 51	< 52
AROCLOR-1254 (PCB-1254)	8082	µg/kg	25	< 26	< 26	< 26
AROCLOR-1260 (PCB-1260)	8082	µg/kg	25	17J ^(a)	30 ^(a)	25J ^(a)

Component Analyzed	Method	Unit	PQL	Analysis Result	
				132-DS-00(1 to 3)	98-05559-(1 to 3)

BIOASSAY, 96 HR. LC50 ^(c)CF&G/WPCL mg/L > 750 ^(b)**TCLP SEMI-VOLATILE ORGANICS, ABN FRACTIONS**

Dilution Factor				1
2,4-DINITROTOLUENE	8270	µg/L	10	< 10
HEXACHLOROBENZENE	8270	µg/L	10	< 10
HEXACHLOROBUTADIENE	8270	µg/L	10	< 10
HEXACHLOROETHANE	8270	µg/L	10	< 10
3/4-METHYLPHENOL (M/P-CRESOL)	8270	µg/L	10	< 10
2-METHYLPHENOL	8270	µg/L	10	< 10
NITROBENZENE	8270	µg/L	10	< 10
PENTACHLOROPHENOL	8270	µg/L	50	< 50
PYRIDINE	8270	µg/L	10	< 10
2,4,5-TRICHLOROPHENOL	8270	µg/L	10	< 10
2,4,6-TRICHLOROPHENOL	8270	µg/L	10	< 10

PQL: Practical Quantitation Limit.

MDL: Method Detection Limit.

CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit.

"-": Analysis is not required.

J: Reported between PQL and MDL.

† All results are reported on dry basis for soil samples.

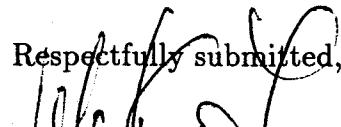
Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0.

(a) Presence of PCB may cause false positives in pesticides chromatogram.

(b) According to Title 22, an LC50 value of ≤ 500 mg/L is deemed toxic.

(c) Additional analysis requested on 10/16/98.

Respectfully submitted,



 Dominic Lau
 Laboratory Director
 Applied P & Ch Laboratory



DATE	10/12/98
TIME	See below
PAGE	1 OF 2
PAGE	
PROJECT NO.	775 745

SAMPLE COLLECTION LOG

PROJECT NAME Hunters Point Shipyard Bldg 123, D.O. 132

SAMPLE NO. 132-SPI-001, 132-SPI-002, 132-SPI-003, 132-SPI-004

SAMPLE LOCATION Building 123

SAMPLE TYPE Soil

COMPOSITE YES NO

COMPOSITE TYPE by Laboratory

DEPTH OF SAMPLE _____

WEATHER partly cloudy cool

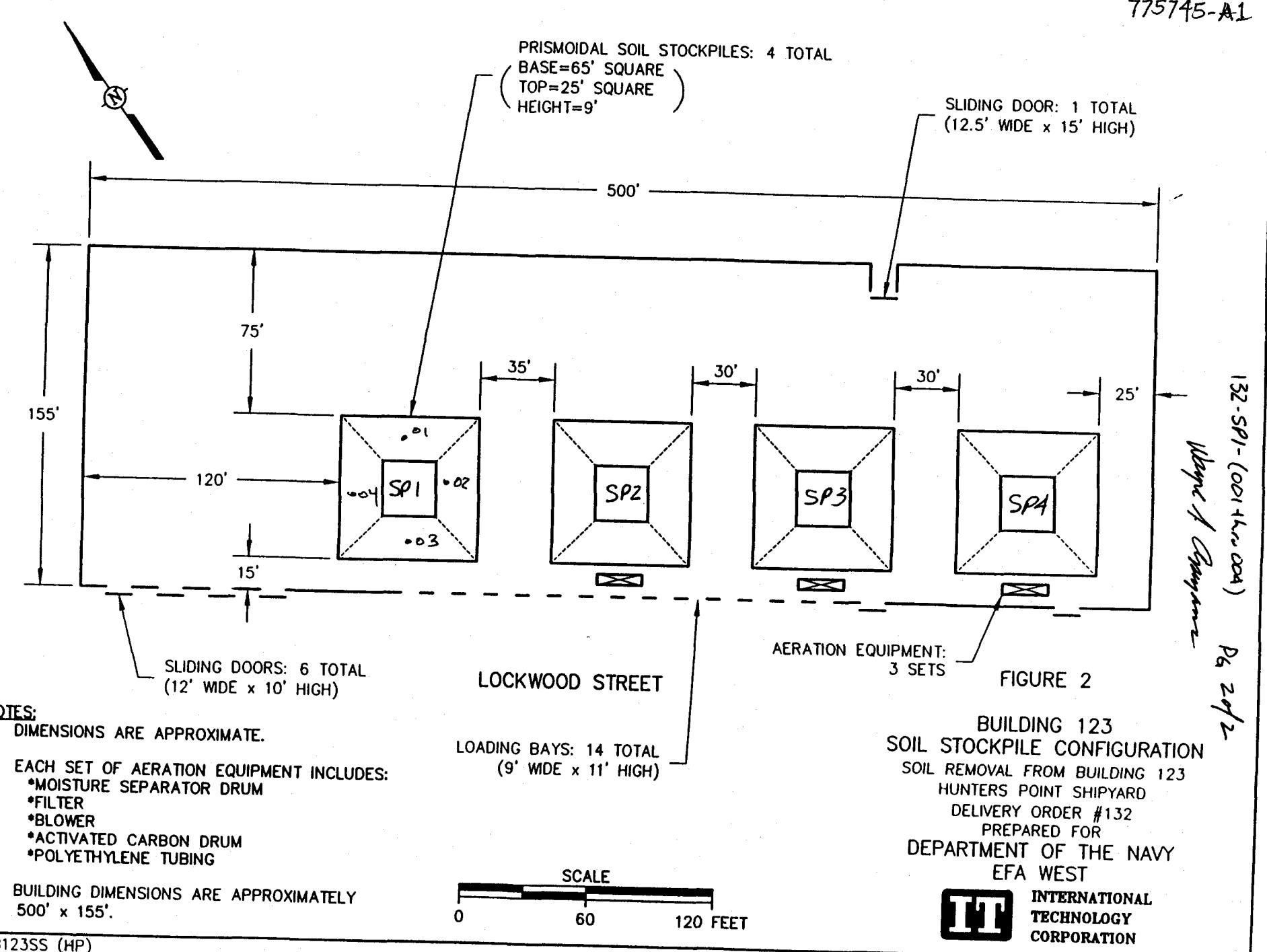
CONTAINERS USED	AMOUNT COLLECTED
ONE 6" x 2" Stainless steel sleeve per sample	4 ea

COMMENTS:				
	SAMPLE NO.	TIME	DEPTH	STOCKPILE
	132-SPI-001	+35 ^m 1345	0.5 ft	
	132-SPI-002	+35 ^m 1345	0.5 ft	
	132-SPI-003	+35 ^m 1345	0.5 ft	
	132-SPI-004	+35 ^m 1345	0.5 ft	
<i>Composite Sample No. 132-SPI-(001 thru 004)</i>				
<i>Analytical Parameters: VOC - 3260; TPH Gas, TPH Diesel - 8013; TRPH - 418.1 Metals (Cd, Cr, Pb, Ni, Zn, As, Be, Mn)</i>				
<i>If Cr > 100 ppm then run STC; If Cr > 10 mg/kg benzene run TCCP benzene, PBA - 8270, PCB/Aldrin - 8081/8082 Fish bio assay M / TPH Gas > 5,000 mg/kg " diesel > 20,000 mg/kg motor oil > 10,000 mg/kg</i>				

PREPARED BY: Wayne A. Renge

T.R.S.	CHECKED BY	08-09-98 AS 9-30-98	DRAWING NUMBER
8/19/98	APPROVED BY		775745-A1

775745-A1





INTERNATIONAL
TECHNOLOGY
CORPORATION

DATE	10	12	98
TIME	see below		
PAGE	1	OF	2
PAGE			
PROJECT NO. 775745			

SAMPLE COLLECTION LOG

PROJECT NAME Hunters Point Shipyard Bldg 123 D.O. 132

SAMPLE NO. 132-SPZ-001, 132-SPZ-002, 132-SPZ-003, 132-SPZ-004

SAMPLE LOCATION Building 123

SAMPLE TYPE Soil

COMPOSITE ✓ YES NO

COMPOSITE TYPE by laboratory

DEPTH OF SAMPLE 0.5 ft

WEATHER Cloudy cool

CONTAINERS USED

AMOUNT COLLECTED

TEA 6"x2" 55

Sleeve per sample

1 ea

COMMENTS:

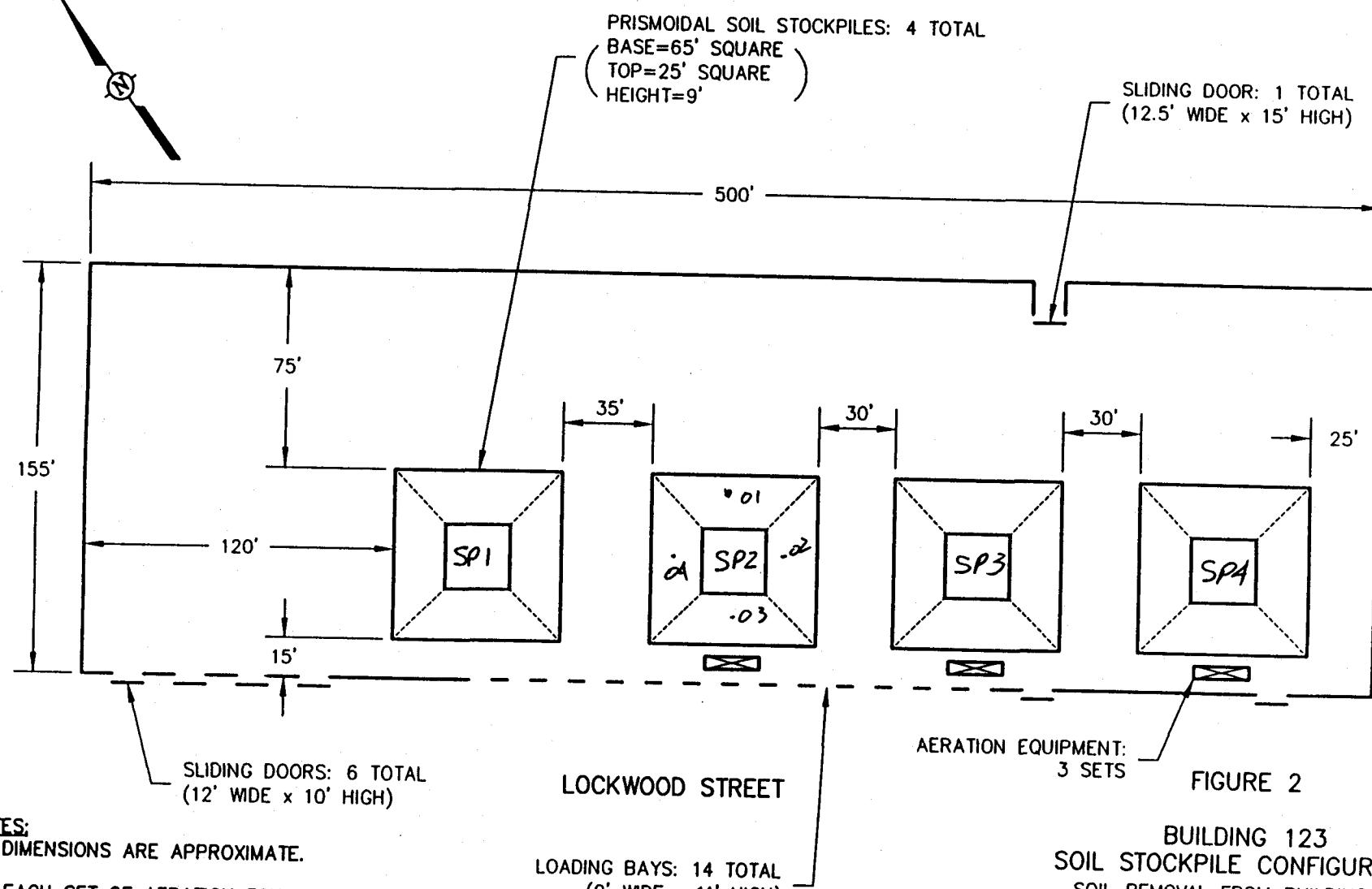
Sample No.	time	depth	Stockpile no.
132-SPZ-001	14/10	0.5	SPZ
132-SPZ-002	14/10	/	SPZ
132-SPZ-003	14/10	/	SPZ
132-SPZ-004	14/10	↓	SPZ

Composite Sample No: 132-SPZ- (001 thru 004)

Analytical Parameters: VOC - 3260; TPH Gas, TPH Diesel - 3015; TPH Oil 418.1
Metals (Cd, Cr, Pb, Ni, Zn, As, Be, Mn) if metal
if Cr > 100 ppm then run STCC
if volatile conc by factor of 10, run STCC except Cr
if 2 benzene > 10ppm/kg run TCCP benzene,
PNA - 3270, PCB/Aldrin - 3081/3082; Fish bio assay
if TPH G > 5,900 mg/kg
diesel > 20,000 mg/kg
Mo > 10,000 " "

PREPARED BY:

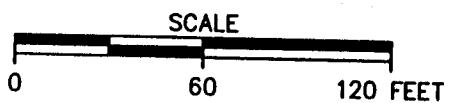
Wayne Parry



NOTES:

1. DIMENSIONS ARE APPROXIMATE.
2. EACH SET OF AERATION EQUIPMENT INCLUDES:
 - *MOISTURE SEPARATOR DRUM
 - *FILTER
 - *BLOWER
 - *ACTIVATED CARBON DRUM
 - *POLYETHYLENE TUBING
3. BUILDING DIMENSIONS ARE APPROXIMATELY
500' x 155'.

HPB123SS (HP)



BUILDING 123
SOIL STOCKPILE CONFIGURATION
SOIL REMOVAL FROM BUILDING 123
HUNTERS POINT SHIPYARD
DELIVERY ORDER #132
PREPARED FOR
DEPARTMENT OF THE NAVY
EFA WEST



INTERNATIONAL
TECHNOLOGY
CORPORATION



DATE	10	12	98
TIME	See below		
PAGE	1	OF	2
PAGE			
PROJECT NO.	775745		

SAMPLE COLLECTION LOG

PROJECT NAME Hurley Point Shipyard D.O. 132

SAMPLE NO. 132-SP3-001, 132-SP3-002, 132-SP3-003, 132-SP3-004

SAMPLE LOCATION Bldg 123

SAMPLE TYPE	CONTAINERS USED	AMOUNT COLLECTED
<u>Soil</u>		
COMPOSITE <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
COMPOSITE TYPE <u>by laboratory</u>	<u>1ea 53 Sieved 2 "x6" per sample</u>	<u>4 ea</u>
DEPTH OF SAMPLE <u>0.5'</u>		
WEATHER <u>Cloudy cool</u>		

COMMENTS:				
SAMPLE NO.	TIME	DEPTH	STOCKPILE NO.	
132-SP3-001	14:20	0.5'		SP3
132-SP3-002	14:20			SP3
132-SP3-003	14:20			SP3
132-SP3-004	14:20	↓		SP3

Composite Sample No.: 132-SP3-(001-004)

Analytical Parameters: VOC - 8260; TPH GAS, TPH Diesel, 8015; TRPH - 418.1
 Metals (Cd, Cr, Pb, Ni, Zn, As, Be, Mn), if
 metals (except Cr) > 50% above conc by a factor of 10 run
 STCC; If Cr > 100 mg/kg run STCC; if benzene > 10 mg/kg
 run TCCP benzene; PNA 8270, PCB/Aldrin 8081/8082
 Fish bio assay if TPH Enrs > 59.00 mg/kg
 Diesel > 20,000 mg/kg
 Motor oil > 10,000 mg/kg

PREPARED BY:

Wayne J. Murray

DR.
BY

T.R.S.
8/19/98

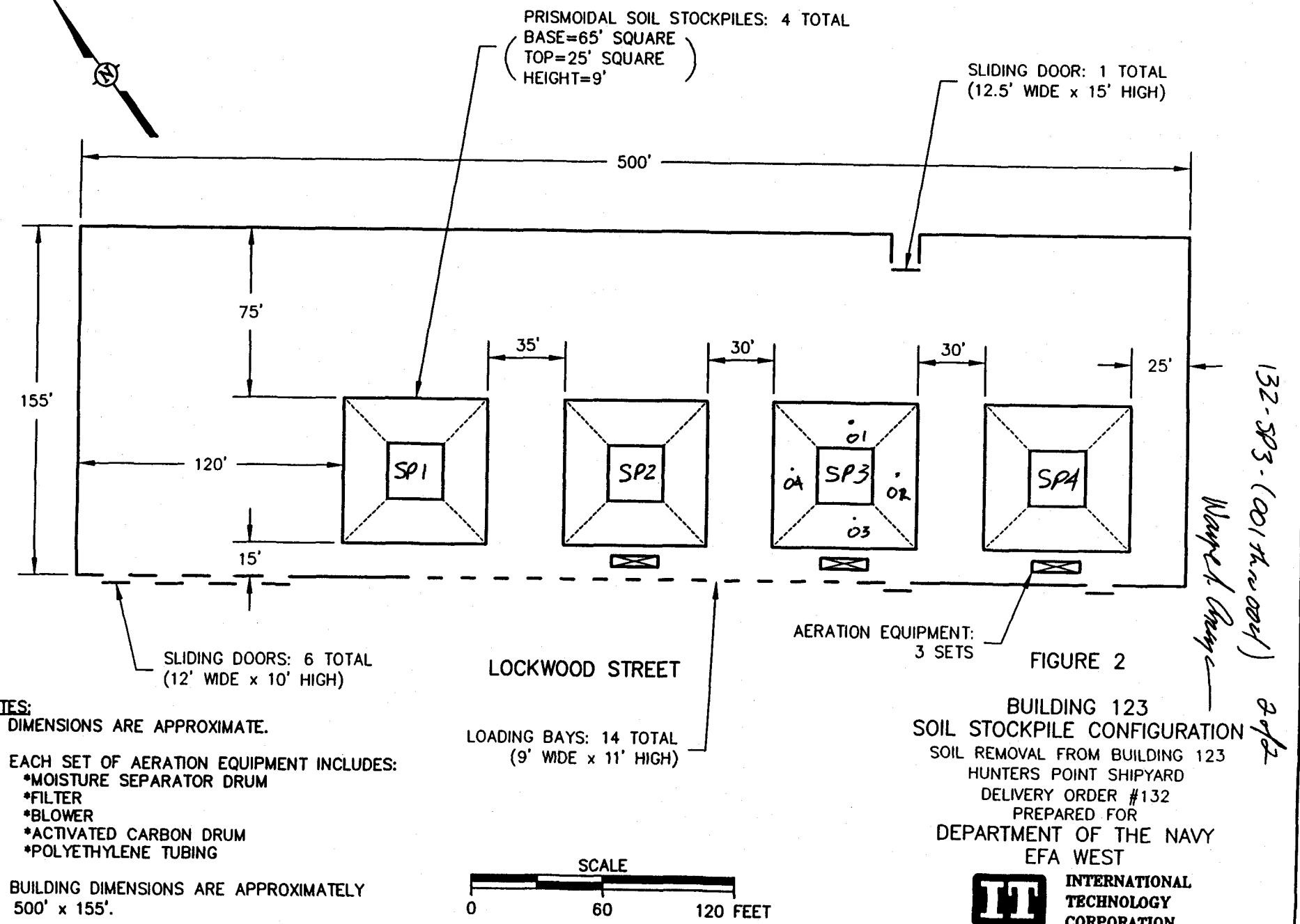
CHECKED BY
APPROVED BY

09-29-98
LS 9-30-88

DRAWING
NUMBER

775745-A1

775745-A1





INTERNATIONAL
TECHNOLOGY
CORPORATION

DATE	10/12/98
TIME	See below
PAGE	OF
PAGE	
PROJECT NO.	775745

SAMPLE COLLECTION LOG

PROJECT NAME Hunter Point Shipyards D.O. 132
SAMPLE NO. 132-SP4-001, 132-SP4-002, 132-SP4-003, 132-SP4-004
SAMPLE LOCATION Bldg 123
SAMPLE TYPE Soil
COMPOSITE / YES NO
COMPOSITE TYPE by laboratory
DEPTH OF SAMPLE _____
WEATHER _____

CONTAINERS USED AMOUNT COLLECTED

1ea 55 gallon per sample 4ea

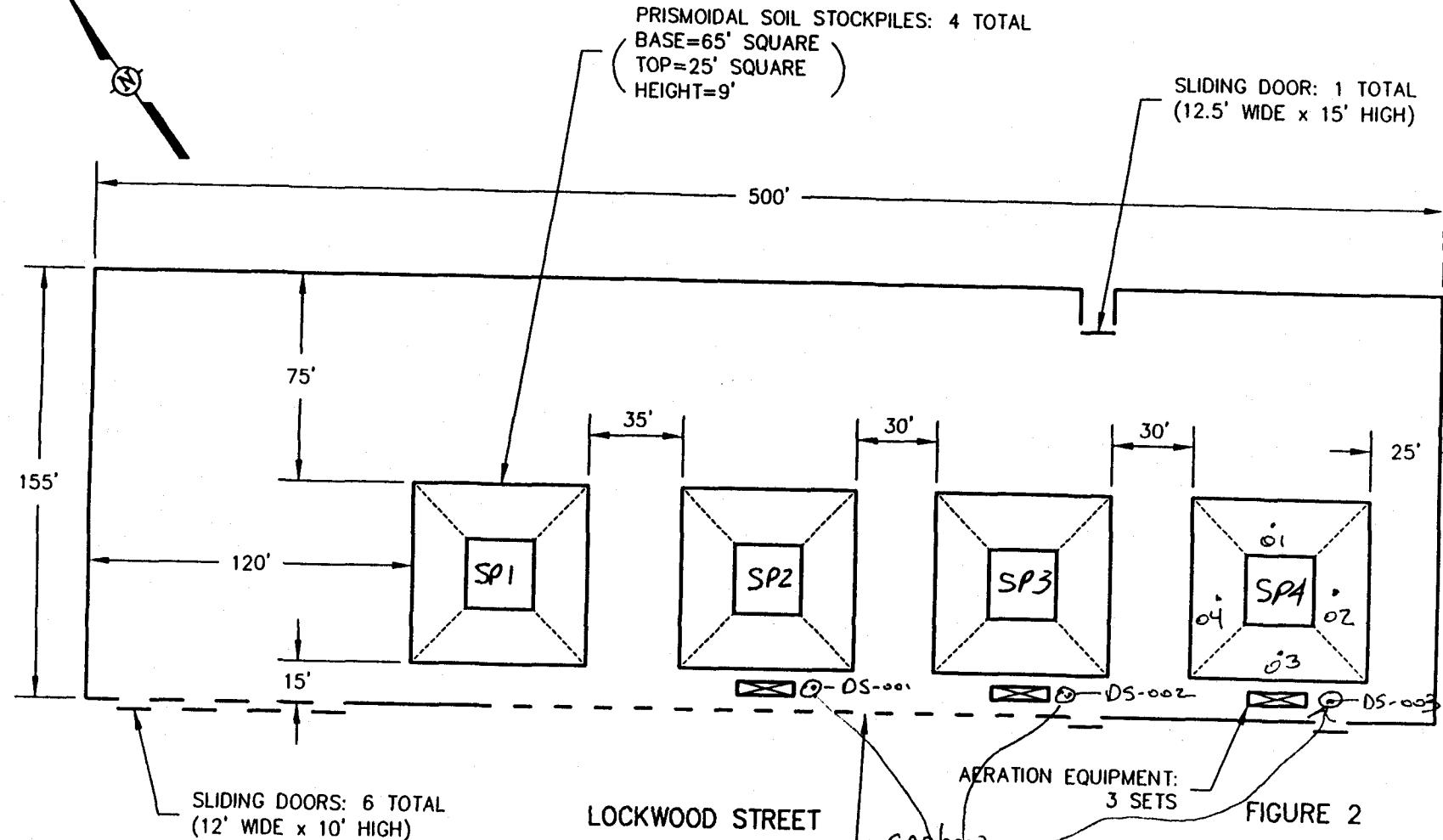
COMMENTS:						
Sample No.	Time	depth	Stockpile No.			
132-SP4-001	1430	0.5 ft	SP4			
132-SP4-002	1430	1	SP4			
132-SP4-003	1430		SP4			
132-SP4-004	1430	↓	SP4			
Composite sample No: 132- SP4 - (001-004)						
Analytical Parameters: VOC- 8260, TPH GAS, TPH Diesel- 8015; TRPH- 418-15 metals(Cd, Cr, Pb, Ni, Zn, As, Be, Mn); If Cr > 100 ppm then run STOC Cr; If other metals > soluble conc by factor of 10 run STOC for those metals; If benzene > 10 mg/kg run TCLP benzene; PAH- 8270, PCB/41driv+ 8081/8082 Fish bio assay if TPH G ≥ 5,900 mg/kg TPH D ≥ 20,000 ↓ TPH Mo ≥ 10,000 ↓						

PREPARED BY: Wayne J. George

T.R.S.
8/19/98

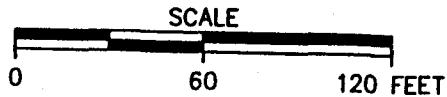
CHECKED BY
APPROVED BY
09-29-98
15-9-98

DRAWING
NUMBER
775745-A1



NOTES:

1. DIMENSIONS ARE APPROXIMATE.
2. EACH SET OF AERATION EQUIPMENT INCLUDES:
 - *MOISTURE SEPARATOR DRUM
 - *FILTER
 - *BLOWER
 - *ACTIVATED CARBON DRUM
 - *POLYETHYLENE TUBING
3. BUILDING DIMENSIONS ARE APPROXIMATELY 500' x 155'.



BUILDING 123
SOIL STOCKPILE CONFIGURATION
SOIL REMOVAL FROM BUILDING 123
HUNTERS POINT SHIPYARD
DELIVERY ORDER #132
PREPARED FOR
DEPARTMENT OF THE NAVY
EFA WEST



INTERNATIONAL
TECHNOLOGY
CORPORATION



INTERNATIONAL TECHNOLOGY CORPORATION

DATE	101298
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PROJECT NO.	775745

SAMPLE COLLECTION LOG

PROJECT NAME HUNTER'S POINT SHIPYARD, D.O. 132

SAMPLE NO. 132- DS- 001 ; 002 & 003

SAMPLE LOCATION Bldg 123

SAMPLE TYPE Soil

COMPOSITE X YES _____ NO

COMPOSITE TYPE by Lab

DEPTH OF SAMPLE 0.5'

WEATHER P.C. Cool

COMMENTS:				
Sample No	Time	depth	LOCATION	
132-DS-001	1450	0.5	CARBON DRUM-1	
↓ -002	1450	0.5		-2
↓ -003	1450	0.5		-3
 Composite Sample ID. 132-DS-(001-003)				
Analyses: TCLP (GGB) 610/620 Y6 TCLP 8260				

PREPARED BY: Tom Chyliński for
WAYNE AKIYAMA

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

APCL QA/QC Report

Submitted to:
 International Technology (Martinez)
 Attention: Jeff Sherwin
 4585 Pacheco Blvd.
 Martinez, CA 94553
 Tel: (510)372-9100 Fax: (510)372-5220

Service ID #: 801-985559
 Collected by: A.Pascall
 Collected on: 10/12/98
 Sample description:
 Soil and carbon from DO 132
 Project: Hunter's Point /775745

Received: 10/13/98
 Tested: 10/14-20/98
 Reported: 11/ 2/98

Analysis of Soil

801-985559QC

Component Name	Analysis	ICV	ICV	M-Blank	Conc.	SP Level	LCS	MS	MSD	MS/MSD	Control Limit	
	Batch #	(mg/L)	%Rec		Unit		%Rec	%Rec	%Rec	%RPD	%Rec	%Diff
METAL Analysis in Water												
Chromium	98M2386	4.00	97	N.D.	mg/L	3.00	104	116	114	2	75-125	20
Chromium	98M2400	10.0	101	N.D.	mg/L	3.00	110	118	118	0	75-125	20
Nickel	98M2400	1.00	101	N.D.	mg/L	1.00	103	103*	102*	1	80-120	20

Component Name	Analysis	CCV	CCV	M-Blank	Conc.	SP Level	LCS	MS	MSD	MS/MSD	Control Limit	
	Batch #	(mg/L)	%Rec		Unit		%Rec	%Rec	%Rec	%RPD	%Rec	%Diff
Semi-VOC, 64 Compounds												
Phenol	98G4247	60.0	98	N.D.	µg/L	100	59	27	26	3	9-109	51
1,4-Dichlorobenzene	98G4247	60.0	94	N.D.	µg/L	50.0	66	80	81	2	21-116	32
2-Nitrophenol	98G4247	60.0	91	N.D.	µg/L	-	-	-	-	-	-	-
2,4-Dichlorophenol	98G4247	60.0	99	N.D.	µg/L	-	-	-	-	-	-	-
Hexachlorobutadiene	98G4247	60.0	99	N.D.	µg/L	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	98G4247	60.0	103	N.D.	µg/L	100	58	62	61	1	22-116	33
2,4,6-Trichlorophenol	98G4247	60.0	98	N.D.	µg/L	-	-	-	-	-	-	-
Acenaphthene	98G4247	60.0	90	N.D.	µg/L	50.0	66	79	77	2	47-123	39
N-Nitrosodiphenylamine	98G4247	300	100	N.D.	µg/L	-	-	-	-	-	-	-
Pentachlorophenol (PCP)	98G4247	300	106	N.D.	µg/L	100	49	66	66	1	15-148	44
Fluoranthene	98G4247	60.0	101	N.D.	µg/L	-	-	-	-	-	-	-
Di-n-octyl phthalate (DOP)	98G4247	60.0	104	N.D.	µg/L	-	-	-	-	-	-	-
Benzo(a)pyrene	98G4247	60.0	89	N.D.	µg/L	-	-	-	-	-	-	-
2-Chlorophenol	98G4247			N.D.	µg/L	100	62	70	71	1	23-117	28
N-Nitroso-di-n-propylamine	98G4247			N.D.	µg/L	50.0	77	96	97	1	11-134	41
1,2,4-Trichlorobenzene	98G4247			N.D.	µg/L	50.0	66	80	82	3	44-111	34
2,4-Dinitrotoluene	98G4247			N.D.	µg/L	50.0	61	75	74	1	39-110	35
4-Nitrophenol	98G4247			N.D.	µg/L	100	53	27	26	3	10-111	50
Pyrene	98G4247			N.D.	µg/L	50.0	68	77	75	2	52-111	29

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

APCL QA/QC Report

Component Name	Analysis Batch #	CCV (mg/L)	CCV %Rec	M-Blank	Conc. Unit	SP Level	LCS %Rec	MS %Rec	MSD %Rec	MS/MSD %RPD	Control Limit %Rec	%Diff
WET Analysis in Soil												
TRPH	98W5768	100	104	N.D.	mg/kg	1000	112	112*	109*	2	80-120	35
METAL Analysis in Soil												
Arsenic	98M2307	1.00	102	N.D.	mg/kg	25.0	92	90	89	1	75-125	20
Beryllium	98M2307	1.00	101	N.D.	mg/kg	10.0	103	103	103	0	75-125	20
Cadmium	98M2307	2.00	100	N.D.	mg/kg	12.5	104	101	101	0	75-125	20
Chromium	98M2307	4.00	100	N.D.	mg/kg	150	105	99	99	0	75-125	20
Lead	98M2307	1.00	99	N.D.	mg/kg	150	108	103	103	0	75-125	20
Manganese	98M2307	4.00	101	N.D.	mg/kg	50.0	98	98*	99*	1	80-120	20
Nickel	98M2307	4.00	100	N.D.	mg/kg	50.0	109	102	102	0	75-125	20
Zinc	98M2307	4.00	100	N.D.	mg/kg	25.0	108	96	95	1	75-125	20
Gasoline												
Gasoline	98G4240	1000	97	N.D.	mg/kg	5.00	94	125	95	27	70-130	30
TPH: Diesel												
Diesel	98G4201	1000	89	N.D.	mg/kg	50.0	115	115*	123*	7	60-140	50
Motor oil/Lubricate oil	98G4201	1000	109	N.D.	mg/kg	-	-	-	-	-	-	-

Applied P & Ch Laboratory

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Tel: (909) 590-1828 Fax: (909) 590-1498

APCL QA/QC Report

Component Name	Analysis	CCV	CCV	M-Blank	Conc.	SP Level	LCS	MS	MSD	MS/MSD	Control Limit
	Batch #	(μ g/L)	%Rec		Unit		%Rec	%Rec	%Rec	%RPD	%Rec
Volatile organics											
Vinyl chloride	98G4213	50.0	99	N.D.	μ g/kg	-	-	-	-	-	-
1,1-Dichloroethene	98G4213	50.0	90	N.D.	μ g/kg	50.0	101	97	100	3	51-154 51
Chloroform	98G4213	50.0	84	N.D.	μ g/kg	-	-	-	-	-	-
Benzene	98G4213	50.0	90	N.D.	μ g/kg	50.0	98	96	100	5	68-127 30
1,2-Dichloropropane	98G4213	50.0	99	N.D.	μ g/kg	-	-	-	-	-	-
Trichloroethene	98G4213	50.0	83	N.D.	μ g/kg	50.0	83	82	83	2	58-132 37
Toluene	98G4213	50.0	93	N.D.	μ g/kg	50.0	100	104	107	3	68-125 34
Chlorobenzene	98G4213	50.0	89	N.D.	μ g/kg	50.0	94	98	98	0	68-122 28
Ethylbenzene	98G4213	50.0	101	N.D.	μ g/kg	-	-	-	-	-	-
Semi-volatile, PAH											
Component Name	Analysis	CCV	CCV	M-Blank	Conc.	SP Level	LCS	MS	MSD	MS/MSD	Control Limit
	Batch #	(mg/L)	%Rec		Unit		%Rec	%Rec	%Rec	%RPD	%Rec
Semi-volatile, PAH											
Phenol	98G4210	60.0	99	N.D.	μ g/kg	3330	78	72	72	0	19-114 32
1,4-Dichlorobenzene	98G4210	60.0	92	N.D.	μ g/kg	1670	87	86	86	1	25-117 31
2-Nitrophenol	98G4210	60.0	97	N.D.	μ g/kg	-	-	-	-	-	-
2,4-Dichlorophenol	98G4210	60.0	95	N.D.	μ g/kg	-	-	-	-	-	-
Hexachlorobutadiene	98G4210	60.0	92	N.D.	μ g/kg	-	-	-	-	-	-
4-Chloro-3-methylphenol	98G4210	60.0	95	N.D.	μ g/kg	3330	74	78	78	0	25-123 33
2,4,6-Trichlorophenol	98G4210	60.0	95	N.D.	μ g/kg	-	-	-	-	-	-
Acenaphthene	98G4210	60.0	92	N.D.	μ g/kg	1670	100	100*	101*	1	49-105 29
N-Nitrosodiphenylamine	98G4210	300	95	N.D.	μ g/kg	-	-	-	-	-	-
Pentachlorophenol (PCP)	98G4210	300	96	N.D.	μ g/kg	3330	58	87	82	6	25-124 33
Fluoranthene	98G4210	60.0	84	N.D.	μ g/kg	-	-	-	-	-	-
Di-n-octyl phthalate (DOP)	98G4210	60.0	98	N.D.	μ g/kg	-	-	-	-	-	-
Benzo(a)pyrene	98G4210	60.0	88	N.D.	μ g/kg	-	-	-	-	-	-
2-Chlorophenol	98G4210			N.D.	μ g/kg	3330	82	80	79	1	25-110 33
N-Nitroso-di-n-propylamine	98G4210			N.D.	μ g/kg	1670	95	92	92	0	25-124 33
1,2,4-Trichlorobenzene	98G4210			N.D.	μ g/kg	1670	81	89	87	1	27-121 32
2,4-Dinitrotoluene	98G4210			N.D.	μ g/kg	1670	86	102	99	3	25-116 31
4-Nitrophenol	98G4210			N.D.	μ g/kg	3330	56	77	73	5	25-123 33
Pyrene	98G4210			N.D.	μ g/kg	1670	82	111	115	3	26-123 32

APCL QA/QC Report

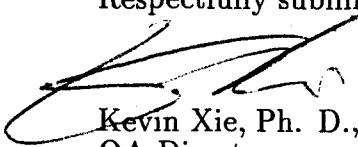
Component Name	Analysis Batch #	CCV ($\mu\text{g/L}$)	CCV %Rec	M-Blank	Conc. Unit	SP Level	LCS %Rec	MS %Rec	MSD %Rec	MS/MSD %RPD	Control Limit %Rec	%Diff
Organochlorine pesticides												
α -BHC	98G4209	50.0	106	N.D.	$\mu\text{g/kg}$	-	-	-	-	-	-	-
γ -BHC (Lindane)	98G4209	50.0	103	N.D.	$\mu\text{g/kg}$	16.7	102	116	97	17	50-150	50
β -BHC	98G4209	50.0	106	N.D.	$\mu\text{g/kg}$	-	-	-	-	-	-	-
Heptachlor	98G4209	50.0	99	N.D.	$\mu\text{g/kg}$	16.7	94	114	96	17	50-150	50
δ -BHC	98G4209	50.0	103	N.D.	$\mu\text{g/kg}$	-	-	-	-	-	-	-
Aldrin	98G4209	50.0	109	N.D.	$\mu\text{g/kg}$	16.7	105	125	110	13	50-150	50
Heptachlor epoxide	98G4209	50.0	107	N.D.	$\mu\text{g/kg}$	-	-	-	-	-	-	-
Endosulfan I	98G4209	50.0	103	N.D.	$\mu\text{g/kg}$	-	-	-	-	-	-	-
4,4'-DDE	98G4209	50.0	101	N.D.	$\mu\text{g/kg}$	-	-	-	-	-	-	-
Dieldrin	98G4209	50.0	110	N.D.	$\mu\text{g/kg}$	16.7	99	109	90	19	50-150	50
Endrin	98G4209	50.0	109	N.D.	$\mu\text{g/kg}$	16.7	103	121	100	19	50-150	50
4,4'-DDD	98G4209	50.0	100	N.D.	$\mu\text{g/kg}$	-	-	-	-	-	-	-
Endosulfan II	98G4209	50.0	110	N.D.	$\mu\text{g/kg}$	-	-	-	-	-	-	-
4,4'-DDT	98G4209	50.0	94	N.D.	$\mu\text{g/kg}$	16.7	99	124	101	20	50-150	50
Endrin aldehyde	98G4209	50.0	104	N.D.	$\mu\text{g/kg}$	-	-	-	-	-	-	-
Endosulfan sulfate	98G4209	50.0	106	N.D.	$\mu\text{g/kg}$	-	-	-	-	-	-	-
Methoxychlor	98G4209	50.0	101	N.D.	$\mu\text{g/kg}$	-	-	-	-	-	-	-

*: LCS/LCSD is used.

Notation: ICV - Initial Calibration Verification
 CCV - Continuation Calibration Verification
 LCS - Lab Control Spike
 MS - Matrix Spike
 MSD - Matrix Spike Duplicate
 ICS - Interference Check Standard
 MD - Matrix Duplicate
 N.D. - Not detected or less than PQL

CCB - Continuation Calibration Blank
 M-blank - Method Blank
 SP Level - Spike Level
 %Rec - Recovery Percent
 %RPD - Relative Percent Differences
 %Diff - Control Limit for %RPD
 ICP-SD - ICP Serial Dilution
 N.A. - Not Applicable

Respectfully submitted,


 Kevin Xie, Ph. D.,
 QA Director
 Applied P & Ch Laboratory

FORM-2D

Applied P & Ch Laboratory

Surrogate Recovery Summary for Method : Semi-VOC, PAH

Client Name: International Technology (Martinez) Contract No:

Case No: SAS No:

Project ID: Hunter's Point

Project No: 775745

Batch No: 98G4210

Lab Code: APCL

Service ID: 985559

Sample Matrix: Soil

#	Client Sample No	Lab Sample ID	S1 % #	S2 % #	S3 % #	S4 % #	S5 % #	S6 % #	TOT OUT
1		98G5559-MB-01	87	89	90	96	83	82	0
2		98G5559-LCS-01	78	82	66	93	77	81	0
3		98G5559-LSD-01	78	84	65	93	79	80	0
4	116-1012-IR-009-MS	98-5545-3MS	78	89	106	84	76	99	0
5	116-1012-IR-009-MSD	98-5545-3MSD	76	87	109	83	78	96	0
6	132-SP4-00(1 to 4)	98-5559-(16 to 19)	66	76	79	70	60	80	0
7	132-SP3-00(1 to 4)	98-5559-(12 to 15)	61	68	73	63	55	72	0
7	132-SP2-00(1 to 4)	98-5559-(8 to 11)	60	73	64	64	54	78	0
9	132-SP1-00(1 to 4)	98-5559-(4 to 7)	70	82	72	72	60	93	0
7									
8									
9									
10									
11									
12									
13									
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16									
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21									
22									
23									
24									
25									

QC Control Limit

S1 = NITROBENZENE-D5	23-119
S2 = 2-FLUOROBIPHENYL	30-114
S3 = TERPHENYL-D14	19-136
S4 = PHENOL-D5	25-112
S5 = 2-FLUOROPHENOL	25-120
S6 = 2,4,6-TRIBROMOPHENOL	19-121

Column to be used to flag recovery values:

* - Values outside of contract required QC Limits D - Surrogate diluted out I - Matrix Interference

FORM-2D

Applied P & Ch Laboratory

Surrogate Recovery Summary for Method : Gasoline

Client Name: International Technology (Martinez) Contract No: Lab Code: APCL
 Case No: SAS No: Service ID: 985559
 Project ID: Hunter's Point Project No: 775745 Sample Matrix: Soil
 Batch No: 98G4240

#	Client Sample No	Lab Sample ID	S1 % #	TOT OUT
1		98G4240-MB-01	108	0
2		98G4240-LCS-01	103	0
3		98G4240-LSD-01	110	0
4	SWMU7E-CS1-MS	98-5616-1MS	104	0
5	SWMU7E-CS1-MSD	98-5616-1MSD	98	0
6	132-SP1-00(1 TO 4)	98-5559-(4 to 7)	118	0
7	132-SP2-00(1 TO 4)	98-5559-(08 to 11)	109	0
8	132-SP3-00(1 TO 4)	98-5559-(12 to 15)	121	0
9	132-SP4-00(1 TO 4)	98-5559-(16 to 19)	112	0
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

QC Control Limit

75-125

S1 = 4-Bromo-fluorobenzene (FID)

Column to be used to flag recovery values:

* - Values outside of contract required QC Limits D - Surrogate diluted out I - Matrix Interference

FORM-2D

Applied P & Ch Laboratory

Surrogate Recovery Summary for Method : Diesel

Client Name: International Technology (Martinez) Contract No: APCL
 Case No: SAS No: Service ID: 985559
 Project ID: Hunter's Point Project No: 775745 Sample Matrix: Soil
 Batch No: 98G4201

#	Client Sample No	Lab Sample ID	S1 % #	TOT OUT
1		98G4201-MB-01	131	0
2		98G4201-LCS-01	140	0
3		98G4201-LSD-01	142 *	1
4	116-1012-IR-008-MS	98-5545-2MS	111	0
5	116-1012-IR-008-MSD	98-5545-2MSD	81	0
6	132-SP1-00(1 TO 4)	98-5559-(4 to 7)	101	0
7	132-SP2-00(1 TO 4)	98-5559-(08 to 11)	94	0
8	132-SP3-00(1 TO 4)	98-5559-(12 to 15)	88	0
9	132-SP4-00(1 TO 4)	98-5559-(16 to 19)	89	0
10				
11				
12				
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15				
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23				
24				
25				

QC Control Limit

60-140

S1 = Octacosane, C₂₈

Column to be used to flag recovery values:

* - Values outside of contract required QC Limits D - Surrogate diluted out I - Matrix Interference

FORM-2D

Applied P & Ch Laboratory

Surrogate Recovery Summary for Method : Volatile Organics

Client Name: International Technology (Martinez) Contract No: APCL
 Case No: SAS No: Service ID: 985559
 Project ID: Hunter's Point Project No: 775745 Sample Matrix: Soil
 Batch No: 98G4213

#	Client Sample No	Lab Sample ID	S1 % #	S2 % #	S3 % #	S4 % #	TOT OUT
1		98G4213-LCS-01	105	85	88	100	0
2	132-SP1-00(1 TO 4)	98-5559-(4 to 7)	101	88	86	107	0
3	132-SP2-00(1 TO 4)	98-5559-(08 to 11)	99	85	87	102	0
4	132-SP3-00(1 TO 4)	98-5559-(12 to 15)	100	86	89	102	0
5	132-SP4-00(1 TO 4)	98-5559-(16 to 19)	103	87	84	104	0
6		98G4213-MB-01	106	86	80	108	0
7		98G4213-LSD-01	113	85	86	112	0
8	18-MP-006-040SO-MS	98-5518-2MS	109	82	81	103	0
9	18-MP-006-040SO-MSD	98-5518-2MSD	109	84	85	108	0
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22							
23							
24							
25							

QC Control Limit

S1 = 4-Bromo-fluorobenzen(BFB)	84-120
S2 = Dibromofluoromethane	80-119
S3 = 1,2-Dichloroethane-d4	80-119
S4 = Toluene-d8	81-116

Column to be used to flag recovery values:

* - Values outside of contract required QC Limits D - Surrogate diluted out I - Matrix Interference

FORM-2D

Applied P & Ch Laboratory

Surrogate Recovery Summary for Method : Semi-VOC

Client Name: International Technology (Martinez) Contract No: Lab Code: APCL
 Case No: SAS No: Service ID: 985559
 Project ID: Hunter's Point Project No: 775745 Sample Matrix: Water
 Batch No: 98G4247

#	Client Sample No	Lab Sample ID	S1 % #	S2 % #	S3 % #	S4 % #	S5 % #	S6 % #	TOT OUT
1		98G4227-MB-01	69	65	58	78	73	69	0
2		98G4247-LCS-01	58	59	61	66	59	66	0
3		98G4247-LSD-01	59	58	61	66	59	65	0
4	132-DS-00(1 to 3)-MS	98-5559-1MS	75	76	69	32	42	78	0
5	132-DS-00(1 to 3)-MSD	98-5559-1MSD	77	75	65	27	42	78	0
6	132-DS-00(1 to 3)	98-5559-(1 to 3)	63	61	66	38	48	66	0
7									
8									
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22									
23									
24									
25									

QC Control Limit

S1 = NITROBENZENE-D5	23-119
S2 = 2-FLUOROBIPHENYL	30-114
S3 = TERPHENYL-D14	19-136
S4 = PHENOL-D5	25-112
S5 = 2-FLUOROPHENOL	25-120
S6 = 2,4,6-TRIBROMOPHENOL	19-121

Column to be used to flag recovery values:

* - Values outside of contract required QC Limits D - Surrogate diluted out I - Matrix Interference

FORM-2D

Applied P & Ch Laboratory

Surrogate Recovery Summary for Method : Organochlorine Pesticides

Client Name: International Technology (Martinez) Contract No: Lab Code: APCL
 Case No: SAS No: Service ID: 985559
 Project ID: Hunter's Point Project No: 775745 Sample Matrix: Soil
 Batch No: 98G4209

#	Client Sample No	Lab Sample ID	S1 % #	S2 % #	TOT OUT
1		98G4209-MB-01	82	89	0
2		98G4209-LCS-01	82	93	0
3		98G4209-LSD-01	84	97	0
4	116-1012-IR-009-MS	98-5545-3MS	88	96	0
5	116-1012-IR-009-MSD	98-5545-3MSD	68	85	0
6	132-SP1-00(1 TO 4)	98-5559-(4 to 7)	59	71	0
7	132-SP2-00(1 TO 4)	98-5559-(08 to 11)	69	74	0
8	132-SP3-00(1 TO 4)	98-5559-(12 to 15)	76	78	0
9	132-SP4-00(1 TO 4)	98-5559-(16 to 19)	61	71	0
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

QC Control Limit

S1 = Decachlorobiphenyl (DCB)
 S2 = 2,4,5,6-Tetrachloro-m-xylene

60-140
60-140

Column to be used to flag recovery values:

* - Values outside of contract required QC Limits D - Surrogate diluted out I - Matrix Interference

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

Submitted to:

International Technology (Martinez)

Attention: Jeff Sherwin

4585 Pacheco Blvd.

Martinez CA 94553

Tel: (510)372-9100 Fax: (510)372-5220

APCL Analytical Report

Service ID #: 801-985922

Received: 10/29/98

Collected by: W.Akiyama

Extracted: 11/01-02/98

Collected on: 10/27/98

Tested: 11/02/98

Reported: 11/02/98

Sample Description: Soil from DO 132

Project Description: 775745 Hunter's Point

Analysis of Soil Samples

Component Analyzed	Method	Unit	PQL	Analysis Result	
				132-(1 to 3)A	98-05922-(1 to 3)
TCLP 8260-ZHE: VOC					
Dilution Factor				1	
BENZENE	8260	µg/L	5	< 5	
2-BUTANONE (MEK)	8260	µg/L	100	< 100	
CARBON TETRACHLORIDE	8260	µg/L	5	< 5	
CHLOROBENZENE	8260	µg/L	5	< 5	
CHLOROFORM	8260	µg/L	5	2.0J	
1,4-DICHLOROBENZENE	8260	µg/L	5	< 5	
1,2-DICHLOROETHANE	8260	µg/L	5	< 5	
1,1-DICHLOROETHENE	8260	µg/L	5	< 5	
TETRACHLOROETHENE	8260	µg/L	5	< 5	
TRICHLOROETHENE	8260	µg/L	5	< 5	
VINYL CHLORIDE	8260	µg/L	10	< 10	

PQL: Practical Quantitation Limit.

MDL: Method Detection Limit.

CRDL: Contract Required Detection Limit

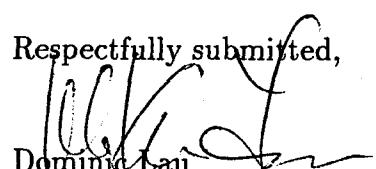
N.D.: Not Detected or less than the practical quantitation limit.

"-": Analysis is not required.

J: Reported between PQL and MDL.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

Respectfully submitted,


Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

RECEIVED
NOV 19 1998
GOVERNMENT PROGRAMS



INTERNATIONAL
TECHNOLOGY
CORPORATION

DATE	102798
TIME	
PAGE	1 OF 1
PAGE	
PROJECT NO.	775745

SAMPLE COLLECTION LOG

PROJECT NAME Hunter's Point Shipyard, D.O. 132

SAMPLE NO. 132-DS-1A, 2A & 3A

SAMPLE LOCATION Building 123

SAMPLE TYPE Carbon Drum

COMPOSITE YES NO

COMPOSITE TYPE 3 point by Lab

DEPTH OF SAMPLE 0.5'

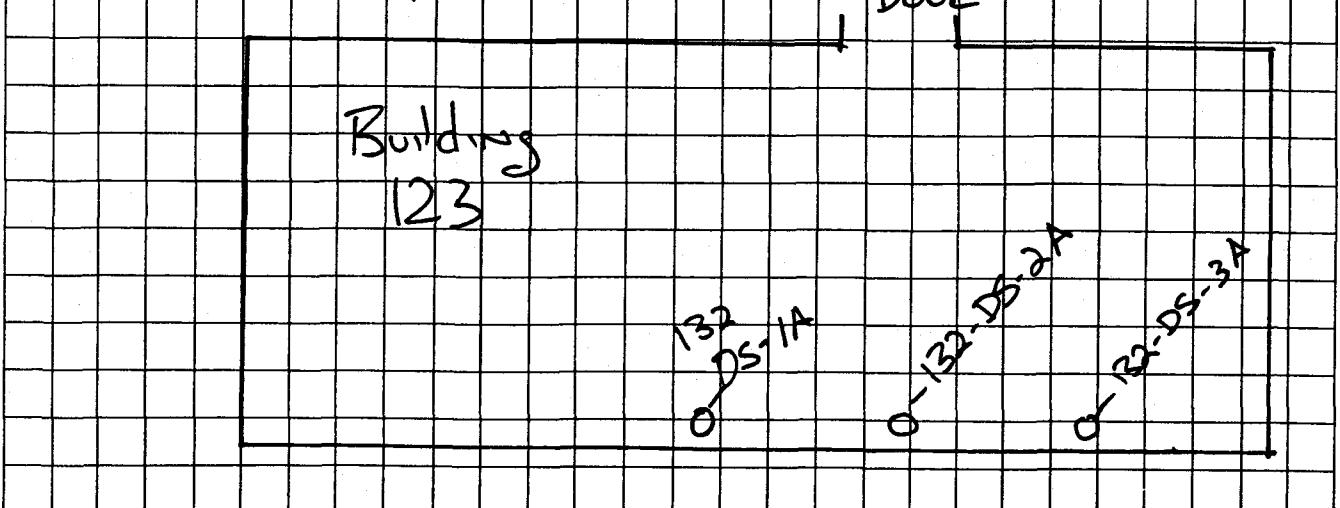
WEATHER Clear, warm

CONTAINERS USED	AMOUNT COLLECTED
<u>Stainless Steel Sling</u>	<u>3 (2" x 6")</u>

COMMENTS:	Sample No.	Time	Depth	Location	
	132-DS-1A	0905	0.5'	CARBON DRUM	# 1
	↓ -2A	0910	0.5'	"	# 2
	↓ -3A	0917	0.5'	"	# 3

Composite Samples Together by Lab.

ANALYSES: TCLP 8260



NOT TO SCALE

PREPARED BY: W. AKIYAMA

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

APCL QA/QC Report

Submitted to:
 International Technology (Martinez)
 Attention: Jeff Sherwin
 4585 Pacheco Blvd.
 Martinez, CA 94553
 Tel: (510)372-9100 Fax: (510)372-5220

Service ID #: 801-985922
 Collected by: W.Akiyama
 Collected on: 10/27/98
 Sample description:
 Soil from DO 132
 Project: Hunter's Point /775745

Received: 10/29/98
 Tested: 11/02/98
 Reported: 11/10/98

Analysis of Soil

801-985922QC

Component Name	Analysis Batch #	CCV (µg/L)	CCV %Rec	M-Blank	Conc. Unit	SP Level	LCS %Rec	MS %Rec	MSD %Rec	MS/MSD %RPD	Control Limit %Rec	%Diff
TCLP-ZHE: VOC												
Vinyl chloride	98G4460	50.0	99	N.D.	µg/L	-	-	-	-	-	-	-
1,1-Dichloroethene	98G4460	50.0	100	N.D.	µg/L	50.0	104	108	100	8	63-137	37
Chloroform	98G4460	50.0	101	N.D.	µg/L	-	-	-	-	-	-	-
Benzene	98G4460	50.0	88	N.D.	µg/L	50.0	91	96	90	7	68-127	29
1,2-Dichloropropane	98G4460	50.0	88	N.D.	µg/L	-	-	-	-	-	-	-
Trichloroethene	98G4460	50.0	83	N.D.	µg/L	50.0	85	84	80	5	71-133	44
Toluene	98G4460	50.0	100	N.D.	µg/L	50.0	102	106	100	6	66-127	30
Chlorobenzene	98G4460	50.0	97	N.D.	µg/L	50.0	102	105	100	6	68-127	30
Ethylbenzene	98G4460	50.0	88	N.D.	µg/L	-	-	-	-	-	-	-

Notation:
 ICV - Initial Calibration Verification
 CCV - Continuation Calibration Verification
 LCS - Lab Control Spike
 MS - Matrix Spike
 MSD - Matrix Spike Duplicate
 ICS - Interference Check Standard
 MD - Matrix Duplicate
 N.D. - Not detected or less than PQL

CCB - Continuation Calibration Blank
 M-blank - Method Blank
 SP Level - Spike Level
 %Rec - Recovery Percent
 %RPD - Relative Percent Differences
 %Diff - Control Limit for %RPD
 ICP-SD - ICP Serial Dilution
 N.A. - Not Applicable

Respectfully submitted,



Kevin Xie, Ph. D.,
 QA Director
 Applied P & Ch Laboratory

FORM-2A

Applied P & Ch Laboratory

Surrogate Recovery Summary for Method : TCLP-ZHE: VOC

International Technology (Martinez) Contract No: Lab Code: APCL
 Hunter's Point SAS No: SDG Number: 985922
 Project No: 775745 Sample Matrix: Water
 Batch No: 98G4600

Client Sample No	Lab Sample ID	S1 % #	S2 % #	S3 % #	S4 % #	TOT OUT
	98G4600-MB-01	92	103	108	109	0
	98G4600-LCS-01	86	94	97	98	0
3	98G4600-LSD-01	89	100	104	102	0
4	132-(1 TO 3)A	98-5922-(1 to 3)	156 I	94	135 I	167 I
5	FC1046PAN-4-MS	98-5790-14MS	90	101	103	102
6	FC1046PAN-4-MSD	98-5790-14MSD	86	95	103	97
9						
10						
11						
12						
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18						
19						
20						
21						
22						
23						
24						
25						

QC Control Limit

S1 = 4-Bromo-fluorobenzene (BFB)	86-114
S2 = Dibromofluoromethane	86-117
S3 = 1,2-Dichloroethane-d4	80-119
S4 = Toluene-d8	88-109

Column to be used to flag recovery values:

* - Values outside of contract required QC Limits

D - Surrogate diluted out

I - Matrix Interference

APPENDIX B
BIOREMEDIATION EQUIPMENT INVENTORY

Blog 123

(Bio Piles (2))

1EA Baldor 3 phase Industrial motor

2EA 2" 90s

1EA 8" x 2" Black Nipples

2EA 2" Black iron ~~nipples~~ union

4EA 4" Black iron Nipples

1EA Muffler

2EA 2" Black iron Elbows

1EA Vacuum Gauge

2EA Vacuum Breaker

1EA 3" x 1/2 T's

1EA 1/2" x 3/8" Male Reducer

1EA 3" x 1 1/4 T

6EA 3" Ball valves

1EA 10 microns 160 CFM Air Filter

1EA 4" x 4" x 4" Sanitary T's

2EA 4" x 3" Reducer

9EA Calder couplings

45' x 4" drain Flex hose

Do 132

BIO INVENTORY

Project # 775745

Rept # 00\$

E-11

D.O. 132

Project #77571

Rept #004

(Bio Piles (3))

1EA Baldor 3 phase Industrial motor

2EA 2" 90s

1EA 8" x 2" Black nipples

2EA 2" Black iron ~~nipples~~ union

4EA 4" Black iron nipples

1EA MUFFler

2EA 82" Black iron elbows

1EA Vacuum Gauge

2EA Vacuum Braker

1EA 3" x 1/2 T's

1EA 1/2" x 3/8" male Reducer

1EA 3" x 1/4 T

6EA 3" Ball valves

1EA 10 microns 160 CFM Air filter

1EA 4" x 4" x 4" Sanitary T's

2EA 4" x 3" Reducer

9EA Colclut couplings

45' x 4" drain flex hose

E-11

2.0.132
Project #775
Rept # 004

(Bio Pile 4)

1EA Baldor 3phase Industrial motor

2EA 2" 90's

1EA 8" Nipple

2EA 2" union

1EA Muffler

6EA 4" PCB Valves

2EA Pressure Relief Valves

1EA Pressure valve

1EA Vacuum Gauge

1EA 10 microns 160 CFM Air Filter

1EA 3" x 1 1/2" x 3" T

1EA 3" x 1 1/2" x 3" T

1EA 3" T

4EA 3" 90's

9ea Colddur coupling 4" A/C/D. To 4" ci/p:

6ft Flex hose 3"

30' 4" Drain Flex hose

2EA 3" Ts

3EA 4" Reducers

1 4" x 1" T

1 1" To 1/2" & 3/8" Threaded MPT